

I want to thank John Nagy for filling in for me last week. However, there are a few errors that should be corrected by SOME of our readers.

If you downloaded last week's edition from GEnie, you will have to update the header information at the top of the issue. John forgot to

update the text by not including the current date and issue number. A small fix file has been included in the archive of this edition. I caught the issue before it was sent to other places and repaired all subsequent uploads. Sorry for the inconvenience.

Included in the edition is an EXCLUSIVE reprint from Atari Explorer magazine. I want to thank John Jainschigg and Mark Jansen for use of the article. It is an extensive review/discussion of the soon to be available ST Book and worth reading! The article MAY NOT be reprinted in any publication without the written permission of Atari Explorer. For more information, read specific guidelines at the top of the article.

Also, we want to thank all our readers for reading Z*Net. From the download numbers on all the areas where Z*Net is available, it is great to see that you have chosen Z*Net as the number one online magazine. If you read other online magazines, remember you can always get the latest Atari news from Z*Net!

If your local BBS system is part of the FNET and does NOT have the popular Z*Net Online Crossnet Conference, ask your SysOp to get it. The conference code is 20448 and the lead node is 593. So far this month there have been over 1000 messages posted from enthusiastic Atari owners leaving messages to Bob Brodie and John Townsend of Atari Corporation, who are responding to rumors and general Atari related information. You can also call any of the other Z*Net systems around the country to be a part of the conference. See the listing at the top of this issue for BBS numbers. Next week TEXAS should be added to the list.

Thanks for reading!

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* Z*NET NEWSWIRE - PRESS RELEASES

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THE COMPUTER MUSEUM SEEKS QUESTIONS FOR THE FOURTH COMPUTER BOWL
The Computer Museum is looking for a few good questions to stump the nation's high-tech heroes in Computer Bowl IV. Computer history, technology, business, folklore, trivia -- anything goes -- in this now classic industry event, to be held May 2, 1992, in Boston. To get those creative juices flowing I will be posting to alt.folklore.computers all of the questions (and answers!) from the first three Bowls. Send your entries (questions, answers, and references) by February 24 to: Computer Bowl Questions, c/o Kate Jose, The Computer Museum, 300 Congress Street, Boston MA 02210, USA. Please include a reference for your answer if you can! All answers will be researched to ensure correctness. The names of people whose questions are selected will be listed in the 1992 Computer Bowl Program, and they will receive a videotape of the Bowl. You may also email your questions to me and I will forward them to the Museum (with proper attribution, of course). Steve Golson -- Trilobyte Systems -- sgolson@east.sun.com

GLENDALE UPDATE - PRESS RELEASE

On Saturday, March 28, 1992 CodeHead Technologies will be the special guest for this year's first Glendale Atari Developers' Conference (GLENCON). Atari's Bob Brodie drew a standing room only crowd at last year's conference, and Atari personnel have been invited this year, too. The Glendale Conferences are sponsored by the User Group, H.A.C.K.S.,

but attendance is open to all ATARI Clubs and ATARI owners. Several conferences are planned for this year, with the intent of each to focus attention on the design and use of popular and powerful software or hardware for Atari computers. The CodeHead Conference will be held in the 275 seat theatre above the Glendale Public Library's Main Branch, 222 East Harvard Street, Glendale, CA. The meeting will start promptly at 10:30 AM and is expected to last three hours. Best of all, admission is FREE, but it is on a first come, first serve basis only. Take I-5 to the Colorado exit, go East a mile to Louise Street, turn North, go one block. An alternative route is to take the 134 FWY to the Central exit, go South a mile to Harvard street, turn East, go two blocks. For more specific directions refer to the, 1991 or prior, L.A. County Thomas Bros. Guide, Page 25-E5. CodeHead Software is one of the oldest and strongest developers of ATARI Products. John Eidsvoog and Charles Johnson are well know to the ATARI community. In fact, there is a good chance that half the people reading this announcement still owe them shareware payments. Their extensive product list includes, HotWire, MaxiFile III, HotWire Plus (includes Maxifile), MultiDesk Deluxe, CodeKeys, LookIt & PopIt, G+Plus, CodeHead Utilities, MidiMax, MIDI Spy, Quick ST, Avant Vector (with EPS), Avant Plot, Genus Font Editor, MegaPaint Professional, Cherry Font Packs, TOS Extension Card, TOS Ext. Card - CPU or BUS Bridge and TOS Chip Set. As an added bonus, The Computer Network, a local ATARI Computer Store, will be having an Open House in honor of this Conference. The store plans to have other developers, including CodeHead and Omnimon Peripherals, Inc. in attendance. Store manager and co-owner Mark Krynsky will be spending the morning hours marking down prices and unpacking special purchases for this Open House. The Computer Network is located at 1605 West Glenoaks Boulevard, Glendale, CA. Directions from the Library to the Store will be available at the Library. The Open House will be from 2:00 PM to 7:00 PM, after the CodeHead Conference is over. If you have specific questions about the Open House you may call Mark at 818-500-3900. This Conference is a precursor to The Glendale Show. This year's show will be held on September 12 & 13, 1992, rescheduled to a week earlier than had been previously announced. More details will be forthcoming as the show date grows closer. John King Tarpinian, President The Hooked on ATARI Computer Knowledge Society

ATARI TALENT SHOW ANNOUNCED - PRESS RELEASE

As part of the Atari Canadian Exposition, ACE '92, April 4/5, a special talent competition has been announced. To demonstrate the many ways that Atari computers can be used in creative entertainment, two divisions will be open for submissions. The contest is open to all Atari Users. **MUSIC AND SOUND** - Since Atari has long been an industry leader in MIDI applications, one division will be open for applications of sound and music. Entries may be live performance, combination of live and pre-created or totally pre-created arrangements of music and sound. Entries may be original compositions or adaptations of existing material. (Initial submission must be made on cassette tape; if accompanied by visual effects, appropriate disk program or description must also be included.) **GRAPHICS OR ANIMATION** - Since Atari can manipulate over sixteen million separate colors, visual arts provides another rich field for creative work. In this field, entrants may submit animated segments, or graphics displays. Submissions may include "slide shows" of created works, demonstrations of works being created, or animated creations of any type. Entertainment value will be the criteria for judging. Individual presentations should last no more than 10 minutes. Entries will go through preliminary judging, and those who are accepted will make public presentations or performances throughout

the day on Saturday, April 4th, at ACE '92. Performances will be open to those attending the Exposition at no charge, and judging of finalists will take place prior to 4PM. Winners will attend the evening banquet as guests of Atari Canada. Each contestant will present their entries or performances at the evening banquet, at which time they will be judged a second time, and prizes awarded. Judging will be on the basis of creative use of the computer and entertainment value. First prize in each division will be a \$700 gift certificate from Atari Canada, good towards the purchase of any Atari product, and a one-year membership in the Toronto Atari Federation. Second place winners will receive a \$200 gift certificate from Atari Canada, and their choice of 10 disks from the TAF Library. Third Place Winners will receive a \$100 Gift Certificate, and their choice of 5 disks. For an entry form, contact: ACE '92, c/o TAF, 5334 Yonge Street, Suite 1527, Toronto, ON M2N 6M2. Or call John R. Sheehan, SJ, TAF President, at (416) 926-1518, or leave a message on the TAF BBS, (416) 425-0318.

RADIATION AND YOUR DISKS

The 77th Scientific Assembly and Annual Meeting of the Radiological Society of North America was held November 1991 in Chicago, Illinois. One of the papers presented at the meetings hold particular interest for computer users who travel with laptops or even just carry floppy disks. The study concerns the effect of airport x-ray machines on the integrity of diskettes exposed to radiation and magnetic fields. Here's the abstract, with additional information, as it appeared in the proceedings from the meeting. "Effect of Ionizing Radiation and Magnetic Fields on Digital Data Stored on Floppy Disks" J.E. Gray, PhD, Rochester, MN. J.P. Taubel, RT(R). L.J. Cesar, RT(R) The lay press often relates stories about airport x-ray luggage scanners erasing digital data. Floppy disks (3.5-inch diameter) containing 1-Mbyte spreadsheet files were exposed to 100 R of diagnostic x-rays, 100 R of therapeutic x-rays, and magnetic fields ranging from 10 to 1,000 G. Only the diskettes exposed to a magnetic field of 1,000 G were adversely affected. Exposure to ionizing radiation and magnetic fields found in typical airport x-ray scanners, or clinical radiology departments, should have no effect on digital data stored on 3.5-inch floppy disks. An issue of RT Image (12/16/91, page 7), a magazine for Radiologic Technologists, reported on the study and included the comments that the x-rays ranged from 100 to 1000 rad, which is one million times the strength of a normal one-millirad airport x-ray machine. The normal one-year exposure rate for humans is 120 rad. Likewise, the magnetic fields ranged from 10 to 10,000 gauss, with data damaged only at the higher end of the scale. Airport metal detectors range from one to three gauss, according to the article.

TELEGAMES TO PUBLISH TRADEWEST SUPERHITS - PRESS RELEASE

Telegames has announced a long-term relationship with Tradewest, one of the leading U.S. based coin-operated games manufacturers. As a result of this relationship, Telegames will publish selected Tradewest properties for the Atari Lynx. Telegames' initial Tradewest releases will be Double Dragon and Super Off-Road. Double Dragon is the story of twin brothers who learned to fight on the cold, tough streets of the city. Their expert knowledge of the martial arts, combined with their street-smarts, has made them both formidable fighting machines. But now, they are faced with their greatest challenge ever! Their friend, Marian, has been kidnapped by the Black Warriors, the savage street gang of the mysterious Shadow Boss! Using whatever weapons come to hand - knives, whips, bats, rocks, oil drums, even dynamite - they must pursue

the gang through the slums, factories, and wooded outskirts of the city to reach the hideout for the final confrontation with the Shadow Boss! Double Dragon may be played by one player, or by two simultaneous players. Double Dragon will arrive at stores during July, with a suggested retail price of \$39.95. Super Off-Road is an all-out dirt grinding race with up to four simultaneous players! Players must negotiate mud holes, jumps and other obstacles on eight different stadium tracks and a total of 16 configurations. Players may trade in winnings for accessories at the Speed Shop to improve their chances for victory. From match-offs to spin-outs, Super Off-Road is as close to genuine short-course racing as you can get! Super Off-Road will arrive at stores in August, with a suggested retail price of \$39.95. With the addition of these market-proven titles to its already popular Lynx-compatible product line, Telegames has reinforced its position as the first and best licensed publisher for the Atari Lynx. Other Telegames Lynx products include: The Fidelity Ultimate Chess Challenge, Qix, The Guardians: Storm Over Doria, and Krazy Ace Miniature Golf.

TOS EXTENSION CARD RELEASED! - PRESS RELEASE

CodeHead Technologies is pleased to announce that the TOS Extension Card is now shipping. The TEC lets you install the very latest Atari TOS (2.06) in your 520ST, 1040ST, Mega ST, or Stacy. TOS 2.06 has many major improvements over older versions of TOS, including a totally redesigned GEM desktop with custom icons, redefinable keyboard commands, and many other new features and performance improvements. The new desktop contains most of the features of the popular "alternative desktop" programs (and a few new ones too!), but with TWO big advantages -- it doesn't gobble up large chunks of memory, and it doesn't need to load from disk. Just turn on your computer and you're ready to go! To make it easier for you to build a library of custom icons to use with TOS 2.06, we've developed a new program called "Icon Juggler," which is included with the TEC. Icon Juggler lets you freely convert icons from ALL the current ST icon formats, including ICE, RSC, ICN, and NIC. Icon Juggler's interface is completely GEM-based; it's like a word processor for icons, with cut, copy, and paste features that make converting your icons a breeze. With the release of the TEC, we're also offering a special deal for those who've been using one of the "alternative desktop" programs available on the commercial market. Take your Neodesk or DC Desktop master disk, FORMAT IT, and send it to us, and we'll give you a \$20.00 discount on any model of the TEC! (Please note that you must FORMAT the disk before sending it to us.) Here are the prices for the TEC, with and without the discount:

Model	Retail Price	Price w/ Discount
Standard version	\$139.00	\$119.00
BUS Bridge	\$155.00	\$135.00
CPU Bridge	\$155.00	\$135.00

A brief description of the different TEC models:

* The standard version requires soldering, and is for owners of 520STs, 1040STs, and Stacys which do not have a socketed CPU.

* The BUS Bridge version, which plugs into the processor bus of the Mega ST, and requires no soldering.

* The CPU Bridge version, for computers which have socketed 68000 chips. This option plugs into the CPU socket, and requires that there be enough room above the CPU within the case.

All versions of the TEC include the official Atari TOS 2.06 chips.

The TEC also has an easily installed option that lets you switch between TOS 2.06 and your existing TOS, to circumvent incompatibilities with ill-behaved programs.

CodeHead Technologies will also be offering the TOS 2.06 chips separately, as an upgrade for STE owners. When you purchase the chips from us, you will also receive our manual describing the features of the new TOS, and our disk containing the Icon Juggler and other useful utilities. The price for the chips alone is \$60.00.

(Note: this press release is being prepared slightly in advance of the actual shipping date; the TEC packages will begin going out the door on February 18, 1992.) For more information, or to order your TOS Extension Card, contact: CodeHead Software, P.O. Box 74090, Los Angeles, CA 90004, Tel 213-386-5735, Fax 213-386-5789

ATTENTION ATARI DEALERS and DEVELOPERS - PRESS RELEASE

We at Atari Advantage Magazine have an offer you just can't pass up... A FREE AD! Here's the deal. If you are going to advertise with us in our first few issues, with at least a 3 time contract, we will run your ad for free in our first issue. If you decide not to sign a contract with us, we'll only charge half price for the ad. Also, we're asking that you submit an ad similar in size to what you are going to be running in the future. We've spent the last couple days trying to call everyone with this offer, but we're not reaching everyone fast enough. We want to give anyone interested in advertising with us a chance to take advantage of this offer. If this sounds like the deal for you, call and let us know what size you are going to send in, and then get your ad in the mail to us! We are trying to put our first issue out by February 19-21, so we need to know RIGHT NOW if you are interested in this offer! We only have so much space to give away, so ads will be placed on a first come first serve basis--don't be the last one in! Atari Advantage can be reached in the following ways: Phone: (503) 476-3578, FAX : (503) 476-0719, GENIE: AT-VANTAGE, CIS : 70007,3615. U.S. Mail: Atari Advantage Magazine, P.O. Box 803, Merlin, OR 97532. UPS, FedEx: Atari Advantage Magazine, 400 Galice Rd., Merlin, OR 97532

APPLE SEEKS \$4.37 BILLION FROM MICROSOFT

Microsoft announced this week that Apple Computer is asking for \$4.37 billion as damages from Microsoft for the alleged infringement of Apple copyrights on parts of the screen display for its Macintosh computer. Microsoft said Apple seeks profits it claims to have lost of \$3.02 billion, allegedly products, allegedly resulting from the presence of Microsoft Windows in the market. It said Apple was also seeking \$1.35 billion from Microsoft products that operate on the Windows graphical environment. Microsoft said its Windows products were not copied from Apple but the result of years of hard work by Microsoft employees. It said that the federal court handling the case in San Francisco has ruled that 179 of the 189 allegedly infringing visual displays in Windows 2.03 are covered by the license agreement as part of a 1985 settlement agreement.

15th ANNIVERSARY

Radio Shack begins its 15th year in the computer business with a new low cost, high performance desktop computer based on a 386 SX microprocessor operating at 25 MHz. The Tandy 2500SX/25, includes professional

features including Super VGA photographic quality graphics, two megabytes of main memory and digital audio at the list price of \$1,299.95.

NCGA 1992 ANAHEIM SHOW

The National Computer Graphics Association announced that its 1992 show, scheduled to be held at the Anaheim Convention Center March 9 through 12, will feature a keynote presentation from one of the earliest originators of the microcomputer revolution. Gil Hyatt, patent holder for the single-chip microcomputer, will give a keynote speech titled "Keeping America Competitive with Strong Patent Protection" at 9 a.m. on Monday, March 9 in the Center Hall at the Anaheim Marriott Hotel.

NCGA's show will also feature exhibits from approximately 120 of the world's leading technology-related companies in all areas of computer graphics, a number of whom will introduce new products or announce important new business relationships. The show will open at 10 am on each of the four days of the conference, and will close at 5 pm on Monday and Wednesday, March 9 and 11; at 8 pm on Tuesday, March 10; and at 3 pm on Thursday, March 12. A number of vendors have announced plans to unveil new products at the NCGA show. New products already scheduled for introduction include CAD software for Microsoft Windows, PC graphics processor boards, rewritable optical storage systems for Macintosh computers, plus hardware and software products for various kinds of graphics output, from hardcopy printouts to presentation slides and projection systems.

VDT SAFETY LAW STRUCK DOWN

San Francisco's law mandating the safe use of video display terminals in the work place was struck down by a judge. Superior Court Judge Lucy McCabe, ruling in a suit filed by two small companies, said that such matters should be regulated by the state, not by local laws. The California Legislature is now considering a bill that would require many of the same provisions in the San Francisco law.

THE GENIE SCIENCE FICTION ROUNDTABLE - by Kenneth Estes

GENie's Science Fiction and Fantasy Round Table is the place to visit if you're interested in science fiction, fantasy, horror, comics or Star Trek. And as part of GENie *BASIC Services, you pay no more for unlimited time spent in the SFRT! Visit the Roundtable if you're interested in Anne McCaffrey's Dragonriders of Pern series; the medieval reenactment Society for Creative Anachronism (the SCA); the Mythopeoic Society, a group that discusses the works of the "Inklings" which included C.S. Lewis, author of the Narnia books, and J.R.R. Tolkien, author of Lord of the Rings and The Hobbit. But most of all, the SFRT is a fun place to have conversations with people from all over the country. The on-line Writer's Workshop and dozens of public access boards have information to help future writers, including tips from professionals, help with research, or motivational strategies that assist you in getting your stories down on paper. Fans of writers, books, science fiction television shows and movies share their enthusiasm. Many science fiction writers are on-line and they love to communicate with their fans and other writers on subjects from their latest works, their past works or even their cat's name. The latest news from the Comic Book Industry. Many comic book professionals visit the SFRT. People from the major publishers and their peers from the independent publishing houses frequently log onto the Bulletin Board and talk about their work and the works of others. Learn the outlines from

future magazines, shipping dates for the latest comics or the hottest gossip in the industry. Star Trek On-line: Professional from the movies, books, and tv show answer your questions. Find out what computers they use on Star Trek: The Next Generation, which fonts are used for their graphic displays, and how certain effects are achieved. Speculate with other Trek fans on upcoming episodes. Information about past, present and future science fiction conventions can be found in the Conventions Category. Some science fiction convention committees have on-line representatives that will answer your questions and listen to your comments. There seems to be something for everybody in the SFRT whether it's having a good conversation or exploring the literature of ideas with others. The SFRT is page 470 and is part of GENie Basic Services. Type "*SFRT" at most GENie prompts to get there.

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Z*NET EXCLUSIVE REPRINT FROM ATARI EXPLORER MAGAZINE
WRITING THE ST BOOK
by Mark Jansen

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Writing the ST Book

Small and lightweight, Atari's new ST Book notebook computer is loaded with sophisticated features and optimized for portable productivity. In this exclusive interview, Explorer's Mark Jansen talks with Tracy Hall, Senior Design Engineer at Atari, who was responsible for developing the core technology on which the Book, and Atari's next-generation pen-based system, the STylus, are based.

AE: ST Book is built around a small, low-power ST-compatible computer. How did that project begin?

TH: It began when I was brought in as a consumer product developer. I was to help Atari find another approach into the United States. That's what ST Book and STylus will allow us to do -- make more inroads into U.S. markets.

I flailed around, and eventually proposed a device that would let you hand-write into your machine. Originally, it was just a handwriting input method, a pen control method, not an ST per se. The idea was to build something inexpensive to allow you to do hand control, hand entry of information; you'd use it as a personal controller, organizer kind of thing.

Then, research showed we could use the STe chip set to build a machine with low power consumption. Most of the chips were CMOS; only a couple of things weren't, like the floppy-disk controller. I decided to build this machine from the ST, so it evolved into a larger, more powerful basic machine.

AE: How was that basic machine developed?

TH: We began with a rough design, and crossed out everything that wasn't absolutely necessary. It was like making a statue of an elephant - take a block of cement and chip away everything that doesn't look like an elephant.

The first six months saw no hardware built at all. We defined what we wanted, thought out what we needed, what we could sacrifice, and how we could save power. It was very, very carefully thought out. Over the next few months, we did the final logic design and early prototypes.

I did things to save five milliamps here and three percent there; for example, we used a new RAM-refresh scheme to save power. Only one pair of RAM chips is fully turned on at any one time, whereas the STe turns on all of RAM at once and refreshes it.

We used pseudo-static RAM, because it saved about ten percent over dynamic RAM and used the least power for its density. Given the battery life we wanted, that was significant.

We eliminated video output, since it burned as much power as the rest of the system put together; I doubled the battery life that way. With a Liquid Crystal Display (LCD), all you need is the LCD controller; very few people carry color monitors in their pockets anyway.

We also decided we didn't need a back-light; we use a very high contrast LCD.

AE: Why no back-light?

TH: ST Book will be used in lit conditions. All you need to see the screen is a small gooseneck light, which musicians, for example, have anyway. We're also talking to third-party companies about doing an ST Book light.

The back-light in STacy uses something like five or six Watts of power. ST Book, when running, uses about one and a quarter Watts, total. If we used a STacy back-light, we'd have about a forty-five minute battery life. We felt it wasn't worth it.

AE: What does ST Book weigh?

TH: Two kilos. 4.4 pounds. That's with the forty-megabyte hard drive and a NiCad pack. It's one of the lightest notebooks around; in fact, you can put two ST Books, two AC adapters, two NiCad packs, two alkaline packs, and two power cords in a STacy case, and it still weighs less

than a STacy.

AE: STacy and ST Book are both portable STs, but the machines are very different, and have different development lineage. Why?

TH: The philosophies were different between STacy and ST Book, which accounts for the difference in the machines. STacy was an ST put into a portable case. Everything stayed; it's the same circuitry as an ST. When you include all possible features, you end up with a larger machine.

ST Book is a different approach -- a lightweight, fully functional, portable machine with a minimum five-hour battery life. Anything that didn't contribute to that was left out.

AE: What were some things done to the core machine to produce ST Book?

TH: We built a new IDE interface for an internal hard drive, and left the floppy drive external, because of the power used by its controller. In most portable applications, given a choice between a forty megabyte hard drive and bags of floppies, the hard drive is an obvious win.

We also developed the Vector Pad. The idea was to fit a mouse substitute into the machine, so you didn't have something on a cord when there's not a lot of space to run a mouse around. It made a good substitute in a small machine; it's very small, easy to use, and durable.

AE: The Vector Pad is a small disk you "lean" in the direction you want to move the mouse; the harder you lean, the faster it moves. How does it work?

TH: The Vector Pad is a force-sensing device. There are four sensors: top, bottom, left, and right. When you push in any direction, the force is distributed between the two closest sensors. The balance of that force depends on how close you are to either sensor; in other words, the ratio of the two gives us the angle at which you're pushing. The total amount of force, both sensors added together, tells us how hard you're pushing. We control the mouse direction using the angle information, and the mouse speed using the force information.

The only motion you feel is your finger and the rubber pad underneath it compressing a bit; it takes about five minutes to get used to it. One reason why it takes that time is one Vector Pad and another aren't exactly the same. If you start using somebody else's machine, its Vector Pad may feel different.

AE: To software, it looks just like a mouse?

TH: Exactly. It goes through the new ST Book keyboard controller, and as far as software is concerned, this is a mouse.

AE: Is ST Book completely compatible with the STe?

TH: There are some control bits that were unused in the STe, which we've used to control the new features of ST Book. A couple of programs are sloppy, and alter those bits; for example, one program puts the internal hard drive into Reset Mode. That's a bad behavior and it's because somebody set a bit that they shouldn't have, but because it didn't hurt anything in the past, they didn't notice.

Cartridges do work, and the expansion port contains all the signals necessary to create a cartridge port. To make a cartridge adapter requires a PC board and two connectors, period. A third party could easily build adapters, or special cartridges.

AE: Is there a BLITTER chip?

TH: Yes; it uses the combination MCU/Glue/BLITTER chip from the STe. You can see a difference in graphics performance with the BLITTER on.

AE: How much memory does ST Book have?

TH: There will be both one megabyte and four megabyte machines available; they are not easily upgradeable. The special power-saving memory refresh uses video access to refresh the RAM. In ST Book, one access to the screen accesses all the chips. That scheme is intimately tied to the size of memory, so you actually have to change control circuitry to change memory size.

AE: What other capabilities does the expansion port have?

TH: It has every signal on the 68000 microprocessor, plus memory control, interrupt control, clocks, all the signals necessary for a cartridge port, and various other useful signals. The specifications have been released to outside developers. It's easy to use, and the expansion port even has the ability to turn the machine on, in case a peripheral needs to do so.

One reason why I put all the 68000 pins out there was so I could hang a logic analyzer onto the system through the expansion port, without opening the case. We've done that extensively, which made it very easy to debug the software.

AE: Are there any new peripherals planned for it?

TH: There is a MIDI expander in design right now. It will provide more MIDI ports, plus SMPTE tracks, to make the ST Book even more useful for musicians.

AE: Other than the expansion connector, what ports does ST Book have?

TH: It has a standard parallel port and standard nine-pin serial port. The MIDI connectors are smaller than normal, because of the size of the machine. However, you will be able to buy an adapter so you can use your regular MIDI cables, and a third party will probably come up with MIDI cables that plug right into the ST Book.

The floppy/ACSI port, which I call "Pseudo-ACSI," is another new connector. It contains the same signals as an ST Hard Disk port, with enough signals added to control the external floppy disk controller. We'll probably include a cable that will allow you to connect ST devices like hard disks or laser printers directly.

Next to the keyboard, there's a small ten-pin connector; we could build a numeric keypad that would plug in here. There is even a protocol for talking out the keypad connection to currently undefined devices.

There is space for an RJ11-type connector and internal modem under the Vector Pad. Just connect your phone line, and go. The modem can also

turn the machine on to receive a call. We're working on a 2400 baud data, 9600 baud FAX modem.

Incidentally, because of the very small and light connectors used, we've provided mounting points so you can anchor a peripheral onto the machine. That way, it doesn't put a strain on the connector itself.

AE: Which version of TOS comes in the ST Book?

TH: TOS 2.06, one of the latest and greatest. We've added a couple of features: for example, if you hold down the Control key during the boot procedure, it loads the hard disk driver as normal, but it does not run desk accessories or the \AUTO folder, or load the NEWDESK.INF file. This is in case you have a bad desk accessory, \AUTO folder program, or NEWDESK.INF, and you can't get your system up. It allows you to bypass the corrupt files and get your machine running.

TOS and the ST Book ROMdisk, which contains the file transfer software and such, are contained in one 256K x 16 ROM chip one half inch on a side. It's very easy to change -- pop out the ROM, pop in a new one, and you're done.

AE: Other than TOS, what is in the ROM?

TH: The power control software that allows you to do a Save and Resume, the file transfer software, and something called "Book Format."

We provide Book Format, in case the data on your hard disk becomes corrupted. It formats and partitions the internal hard drive, and installs a bootable driver. Just run the file transfer program to put files back onto your machine.

The hard disk comes with a calendar and calculator, which run as accessories. You also get a floppy containing the Control Panel and CPXs, and the accessories, should you need it.

AE: ST Book comes with a calendar/appointment program. How does it work?

TH: The real-time clock chips in STs and STes have had an "Alarm" output, which previously hasn't been connected anywhere. In the ST Book, it's actually connected to the power-on circuitry.

You can set an alarm for sometime in the future that will turn on the system. The system will go right back to whatever application you were in, and then things like desk accessories and such can run. Programs can use that capability; for example, software could wake up the system, use a modem to call a bulletin board, download a couple of files, and go back to sleep. We've provided a new system call to allow them to do things like that.

The calendar program keeps track of appointments and regularly scheduled events, and has a phone dialer and such. When one of its alarms go off, it turns on the machine, beeps, and displays an Alert Box with the text you entered for that particular appointment.

AE: Will all ST Books have hard disks?

TH: Yes, they will have at least forty megabyte hard disks. There could be some available with sixty megabyte and larger drives.

AE: Could a dealer install a larger capacity hard drive?

TH: Yes, but it would take some work. We don't recommend you buy other IDE drives, because there are some characteristics about the ones we're using, various features that we've had put into the firmware, which aren't on standard IDE drives. Other IDE drives will work, but you won't get as careful power control.

AE: The entire ST Book is smaller than an ST keyboard, so a new keyboard was obviously needed. How did you fit a workable ST keyboard into that space?

TH: This keyboard has eighty-four keys, rather than the ninety-four of a full size keyboard. The keys are slightly closer together than on a full-size keyboard, and have a shorter keystroke, but the difference is small enough that it's really quite easy to use.

The keypad keys are embedded into some of the normal keys; there's a "Fuji" key, which allows you to access the "keypad" modes in the normal keyboard. There's also a "Pad Lock" key to lock the keys into that mode. It gives you a numeric keypad within the regular keyboard.

We also added a couple of features to the keyboard controller. It now has a "sleep" capability, where the controller can go to sleep between keystrokes or commands, saving a little more power. That requires hardware hand-shaking between the keyboard and the rest of the machine, which is built into the ST Book. One side effect is that on the ST Book, you don't lose keystrokes if software can't keep up; they'll just be saved up in the keyboard controller until it can send them out.

AE: Without a floppy drive, how do you transfer files into the ST Book?

TH: You can use the built-in file transfer software and the parallel port; it takes about two minutes to transfer a megabyte of data.

We include a special file-transfer cable, which is a parallel printer cable with a couple of pins swapped, and a copy of the file transfer software on floppy disk, so you can run it on another ST. The software shows you both machines' disks. You select files to copy, and copy to or from the other machine; you can do backups in either direction, all over the parallel port. It will also work over the serial port, so if you don't happen to have the parallel file transfer cable with you, you can use a serial cable. We have available a Portfolio version of the program as well, which will allow you to transfer data with a Portfolio.

AE: What about those who really want a floppy drive?

TH: We will make an external, battery operated, high-density floppy. It should provide over two hours of active use on four alkaline cells -- much longer if it's off much of the time. The drive won't steal power from the ST Book's batteries, but if the ST Book is plugged into its AC adapter, the floppy drive will get power from that. Otherwise, the drive has its own AC adapter.

AE: Is the drive different from other ST external floppy drives?

TH: Yes. To save power and space in the ST Book itself, the floppy drive controller chip is in the floppy drive. It's a new chip, which allows us to use a high-density, 1.44 megabyte drive, the only drive planned for the ST Book.

AE: ST Book allows you to shut it down quickly, even within an application, and come back right where you were, a feature called "Save and Resume." How is that done?

TH: What actually happens is the machine reads the values of all its hardware registers: processor registers, hard drive, memory control, video access mode, video base registers, everything it can find, and stores them in a previously-allocated section of memory. In ST Book, all the memory is always battery-backed; it's not a special bank.

When the machine is turned on again, the BIOS executes a routine to restore the machine to the state it was in before it was shut down. It restores the registers, then the BIOS returns the machine to your code, as if nothing had happened. It all takes about a half a second -- even if you need to spin up the hard drive to save a file, that only takes about three seconds.

It works in almost all applications, unless they're doing weird networking over the MIDI port or something like that. The vast majority of programs like spreadsheets or word processors have no problems at all.

AE: What kind of batteries does the ST Book use?

TH: ST Book is designed to run on NiCads, which give you the long battery life. Alkalines only give you a couple of hours of battery life, but if you're at an airport and there's no place to plug in, you can buy yourself a couple of packs of batteries and continue working.

It's unlikely you're going to need a recharge in a day of travel anyway. With two battery packs, which charge in about an hour and a half, it's easy to charge one pack the evening before and one in the morning, and go off to the airport; you can practically fly around the world on two packs.

AE: Are the battery packs recharged when they're in the machine?

TH: They're recharged in the machine whether it's running or not. It's an independent portion of the AC adapter.

AE: An hour and a half charging gives you five hours of use?

TH: That's absolute minimum. We ran tests here, accessing the hard drive for one minute every five minutes, displaying a fairly complex dither pattern on the screen, and using no power saving techniques at all, and we got over five hours of battery life. During normal use, I would expect ten hours.

Save and Resume saves a great deal of power. And when you shut the machine down, it uses so little power battery-backing the memory, the batteries will last up to three months.

AE: What power-saving techniques are available?

TH: There are three things you can do. "Video Saver," stops updating the LCD display from main RAM; the LCD controller has its own copy of screen memory, and it updates the LCD from that. Whenever a system call is made to update the screen, screen updates are turned on, and turned off afterwards, automatically.

The side effects of this are minor. Because screen updates aren't being done from RAM, we have to turn on some self-refresh circuitry to keep the RAMs refreshed, which slows down memory accesses every once in a while. Programs run 0.5% slower in this mode, and for the cost of that 0.5%, you save twenty to twenty five percent of the system power -- a very good trade-off. If you have some weird program that writes to screen memory directly, one that doesn't use system calls, there's no way to detect that, and the changes it makes to the screen won't show. But those programs work fine with Video Saver off.

After a certain amount of time, "Blank Screen" turns off the voltage to the LCD driver, saving another ten to twenty percent of the system power. Its only side effect is blanking your screen. Whenever there's a keystroke, or if you choose, activity on the serial port, it turns the screen back on.

If there's no physical I/O, meaning any kind of floppy, hard drive, serial, parallel, MIDI, or keyboard activity for a certain amount of time, "Shutdown" shuts the system down, via Save and Resume. When you press the Power button, you're right back where you were.

Both Blank Screen and Shutdown are programmable for up to twenty minutes delay.

AE: No matter how thrifty you are with battery power, they'll run out eventually. Can you monitor their condition?

TH: There's a lot of power detection and management built into the machine. There are actually three levels of low power signals: Source Low, Source Dead, and Power Not Good. The Power light is green under normal conditions, orange when the battery is low, and red when "Source Dead" occurs. There's also a bit that can be read by software, indicating that the batteries are low.

When the light turns orange, it usually means you have about a half an hour left in the batteries; it's a darned good idea to save your files and find an AC source or a fresh battery pack, particularly since all you have to do is hit the power button to turn the machine off, swap in a new battery pack, and turn the machine on again.

Both the Source Low and the Source Dead signals allow code to run. Power Not Good means the five volt supply to the machine is drooping, and shuts down immediately. You will probably never actually see the red light; by the time it's red, the machine's shut off.

AE: In the worst case scenario, what could happen if you let the batteries run dry, and ignore all the signals?

TH: You might have to reset the machine, but you most likely won't lose anything. The ST Book takes care of itself pretty well. If you don't try to "push the envelope," it will survive.

AE: When Source Dead has occurred, is the data in memory preserved?

TH: RAM is maintained, as a matter of fact. It has a separate linear power supply, which works off the NiCads until they get down below about six volts, which for eight NiCad cells is really low. Then there's a pair of rechargeable lithium cells to take over, which allow you to switch battery packs; they keep RAM alive for forty or fifty hours, so

you can switch batteries r-e-a-l s-l-o-w-l-y.

AE: What about the hard drive?

TH: These hard drives are quite good at taking care of themselves - they automatically park their heads, so they won't be damaged.

AE: What kind of battery packs does ST Book use?

TH: They're about cigarette case size, and the NiCad packs weigh about a half pound to a pound, and give very good power density.

There's also an alkaline pack; you just drop your batteries into the pack, and slide it into the machine. ST Book only charges NiCads, so if you plug in the AC Adapter/Recharger while you have alkalines in, the machine will stop using power from them and won't try to recharge them. It's perfectly safe.

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* THE TOP PALMTOPS - PART 2 of 2 by David Hayden

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Poqet PC

If your definition of a true palmtop is a full function equivalent of a laptop, the \$1,450 Poqet PC is what you have been waiting for. The Poqet PC is the only unit that offers full PC compatibility by providing a standard 80 x 25 display with CGA graphics capabilities.

It also sports a standard QWERTY keyboard, 512K memory, a 512K RAM card, and the PC Link cable and software.

Many popular PC programs have been converted to ROM cards for use in the Poqet PC. ROM-card versions of Lotus 1-2-3, WordPerfect, Lotus Agenda, ACT!, Lotus Works, XyWrite III, and PC Anywhere IV represent a good selection of programs that you might already use on your desktop PC. Two industry standard RAM/ROM card slots are available.

Two factors detract from the Poqet PC: size and price. While the 8.8 x 4.3 x 1-inch footprint is impressive for its capabilities, it cannot fit in an inside coat jacket pocket, despite the manufacturer's claim to the contrary. Even if you managed to find a big enough pocket, it would be too big and bulky for an all-day affair. The obvious place for the Poqet PC is a briefcase. This begs a key question: If you are going to use a briefcase to carry your Poqet PC, why not carry a more capable notebook computer? For many users, a notebook computer makes more sense, but sometimes the smaller Poqet PC is a better solution. In restaurants, business meetings, seminars, and other places where space is limited, the Poqet PC offers obvious advantages.

At \$1,450, the Poqet PC is the most expensive palmtop reviewed here. Although the recent inclusion of a 512K RAM card with the base unit makes it a much more attractive product, it is still twice as expensive as the similarly equipped HP 95LX, which includes Lotus 1-2-3. On the Poqet PC, Lotus 1-2-3 is a \$495 option. The base unit price, though, is only half the problem. As with most of the palmtop computers, the true expense is in memory cards, which cost as much as \$1,400 for a 2MB RAM

card.

To alleviate this problem, Poqet has teamed up with SelecTronics and Memory Card Associates. SelecTronics has licensed an exclusive data-compression and retrieval technology from Xerox Palo Alto Research Center that allows a 20MB database to fit onto a 1MB memory card. Memory Card Associates provides a service to copy legally licensed software to inexpensive ROM cards up to 4MB in size.

Another problem with the Poqet PC is the hard-to-read LCD display. The characters are very small and glare is a problem. The latter problem has been somewhat resolved with an improved model. Unfortunately, the new \$1,500 Prime Poqet PC, which increases the internal memory to 640K, is only available from selected Value Added Resellers such as Digital Equipment Corporation, and does not include the 512K memory card or PC Link cable.

While the Poqet PC has its shortcomings, it is a very capable product for those who can afford it. In the right light it is a pleasure to use. The keyboard, which was modified from the original design, allows for touch typing and has a very solid feel. The built-in applications could use some improvements, however.

The Write application is a useful text editor, but if you want to do any significant amount of writing, you probably will opt for the WordPerfect ROM card. The text editor provides block search and replace, move and copy, word wrap and printing.

The Talk application is a useful communications program. While all palmtops reviewed here, except the Casio B.O.S.S., provide some modem communications capabilities, the Poqet is clearly the most adept in this area because of its 80 x 25 display.

Unfortunately, the built-in communications program has neither terminal emulation nor scripting capabilities for automating communications sessions, so users must look to third parties for a complete solution. Traveling computer support personnel can run the optional PC Anywhere program on the Poqet PC to provide electronic software support from anywhere in the world. This program also allows users to log onto a network.

If you are looking for an electronic replacement for your day book, look elsewhere. The appointment book and scheduler lack the flare of products like the Sharp Wizard and HP 95LX. The Poqet PC provides basic functionality, plus an alarm function that works even when the unit is turned off. The Poqet tools also include a calculator function with memory and paperless tape.

To enhance the compatibility of the Poqet PC, standard peripherals, including parallel and serial ports and a 3.5-inch battery-operated 1.44MB floppy disk drive are available. A \$389 PC Card Drive from DataBook allows Poqet memory cards to be used on a standard PC. The Poqet PC link cable and software is provided for file transfers. It is similar, although not as well implemented, as the popular LapLink file transfer program.

If you are looking for a small substitute for a laptop, the Poqet PC may be just the ticket, if you can afford the admission price. Also, if you must have a palmtop with an 80 x 25 display, the Poqet PC is not only your best choice, but your only one. We found the Poqet PC to be the

only unit that provided a solid word-processing environment. The combination of WordPerfect, full-size display and solid keyboard put it well above the rest in this area. Because of the Poqet's limited built-in applications, it is inappropriate as an electronic day timer, but for applications that require full DOS compatibility the Poqet PC is the best choice.

Sharp Wizard OZ-8200

If you are looking for an electronic replacement for your day book, and DOS compatibility and power spreadsheets are unnecessary, the \$399 Sharp Wizard OZ-8200 is the product for you. It features a clear 40-character x 8-line display, 128K of expandable memory, a program card slot with a unique touch screen panel and a host of built-in applications that are a pleasure to use.

If you judge a palmtop on the basis of the design and operation of its built-in applications, the Wizard is head and shoulders above the rest. With a few exceptions, the Wizard's built-in software is well designed and intuitive.

The scheduler provides monthly, weekly and daily views, and a time line that graphically displays start and end times of appointments, revealing scheduling conflicts. Alarms will sound even if the unit is turned off. Repeating appointments are handled through a flexible anniversary function. Three address books and a flexible, albeit slower, business card function are included.

The memo function is the OZ-8200's most disappointing application. It is limited to 2,048 characters per entry. Other than a basic search facility, the Wizard's memo function offers an innovative feature called calc data. This feature can be used for storing price lists, and by using the integrated calculator, you can calculate a proposal on the spot.

The outline function will appeal to even the most diehard outline user. It is useful for keeping track of to-do list, projects, presentations and a variety of other applications.

A built-in module provides modem communications with the addition of a \$179 pocket modem or a \$499 fax/modem. This well-designed communication facility provides a dialing directory, log-on scripts, and virtual 80-column support.

Other applications include a calculator with memory and paperless printer as well as an index feature that displays a one-line description of each entry in each built-in application. World and local time functions and a password facility to protect data from prying eyes are also provided.

Unlike the older 7000 series, the 8200 has a standard QWERTY keyboard that is a godsend for previous Wizard users. The keys are adequately spaced, and the feel is good enough to make touch typing possible. Twelve buttons located across the top of the keyboard let you access the built-in applications. Unique to the Wizard is a touch screen located next to the display, which changes functionality with each program card.

Although the Wizard is not MS-DOS compatible, Sharp and several third party vendors have released Wizard-specific applications, all utilizing the Wizard's exclusive touch screen. One of the most powerful of these

is the 3-D Worksheet Manager, which is based on Lucid 3D, a popular PC-based spreadsheet. It features a 26-column and 999-row work area, and a host of advanced features, including 3-D spreadsheet-linking, macros, financial functions and graphing.

Other IC program cards include Time/Expense Manager, Dictionary/Thesaurus, Language Translator, City Guide and Money Planner. Unfortunately, most of these cards, except the 3-D Worksheet Manager, were developed for the original Sharp Wizard OZ-7000 and its 16-column screen. These applications only use the first 16 columns of the Wizard 8200's 40-column display. The good news is that most new cards support the full screen. A few recently released programs include the Holy Bible, Chess, a Tetris-like game and Basic programming.

Basic is not the only application development tool, though. Probably the most innovative program for the Wizard is a program called Toolkit, by Nictrix. It is both a database and application generator, and is available in both end-user and developer versions.

Because palmtop computers generally serve as an extension to a desktop PC, the PC Link is a critical part of the total package. The Wizard's well-designed link provides a facility for backing up files to a PC, but it goes further by providing complete PC versions of the Wizard's built-in applications. It can also merge data changes on both the PC and Wizard. Several import and export routines are available, including Sidekick II, ASCII, comma delimited, and even Lotus 1-2-3 for the optional Time/Expense Manager card.

The Sharp Wizard OZ-8200 is the perfect electronic replacement of a day timer. Applications are full-featured and work as expected. The appointment scheduler is effective at handling even the busiest of schedules. The integrated outliner allows you to organize notes and ideas and access them at the touch of a key. The ability to easily merge data from the Wizard and a PC, via the PC Link, allows the Wizard to function as an extension of a desktop PC. The abundant supply of program cards available allow you to easily expand the Wizard as your needs grow. If DOS compatibility is not a requirement, and you want a top-notch electronic day book with superior connectivity to both PCs and Macintoshes and a good selection of software, you can't go wrong with the Sharp Wizard OZ-8200.

Recommendations

Although the palmtop class of computers is still in its infancy, these products can fill the needs of just about every user. While advances still need to be made in the areas of storage media and screen technology, these products have come a long way in a relatively short time. It is impossible to make an across-the-board recommendation, because these products are clearly not one-size-fits-all.

While each product has its own weaknesses, each also has its place in the market. Although it is difficult to generalize on the market breakdown of each product, key features of each product position it for specific users.

The best way to decide which palmtop is right for you is to compare the relative strengths and weaknesses of each unit described in this report with your own needs and desires. If possible, find a dealer that offers a return policy, so you can try out your choice in everyday situations to see how you like it.

The Casio Executive B.O.S.S. SF-9500, though inexpensive and capable as a basic organizer, offers few innovations ... and therefore provides little incentive for new buyers of palmtops. However, existing users of earlier B.O.S.S. models may choose it as an easy upgrade.

For this category of computers, you cannot make an informed decision by reading a specification sheet. From a technical specification standpoint, the Poqet PC is clearly superior, but the hefty size makes it more of an extremely small notebook computer rather than a palmtop. Also, the built-in applications are somewhat lacking, and the screen can be hard to read. Nonetheless, if what you demand is full PC compatibility, a full-size 80 x 25 display with CGA graphics capability, and a great keyboard, the \$1,450 Poqet PC is the hands-down winner.

The low-priced Atari Portfolio offers more than simple day timer functions, but its DOS compatibility is limited. If you are looking for a device to use primarily as a note taker, the Portfolio, with its well-designed keyboard, might be just right. And with the hundreds of free programs available, it is most certainly an excellent value.

If your objective is to find the best all-around organizer, there's no beating the Sharp Wizard OZ-8200. Don't plan on any heavy-duty spreadsheet work--that's not really what the Wizard's designed for. The unique touch screen makes the incredible variety of card-based applications a pleasure to use (although you should avoid the older cards written for the original 16-column Wizard). The built-in schedulers, to-do lists and the like are excellent. And the perks just keep piling up, like the easy-to-use PC Link capability. Sharp's continual refinement of the Wizard should pay off for them handsomely. We're pleased to award this product our "High Honors" recommendation.

For the diehard Lotus 1-2-3 user, the Hewlett-Packard 95LX is clearly the best choice. And this isn't the HP's only strength: The scheduler and alarms rival those of the Wizard, and the PC link is nearly flawless. Only the keyboard is sub-par, and even that is a matter of personal taste: Users who want a separate numeric keypad will prefer this model. As the newest palmtop on the market, the 95LX definitely benefits from Hewlett-Packard's attention to the pros and cons of the competition. We can expect a host of innovative applications for the 95LX, not the least of which is the Motorola communications device, which will take the palmtop category to a new plateau. Congratulations to Hewlett-Packard for earning the Mobile Office "High Honors" award.

David Hayden is the president of Computer Systems Analysis, a consulting firm that specializes in the support of palmtop computers.

SIDE BAR

Battery Life

Battery life has always been exaggerated by laptop vendors, and palmtop vendors have carried on this same tradition: Vendors claim as much as 150 hours of usage on a single set of batteries. Many factors affect the battery life of these pocket computers. The most dramatic is the use of peripherals, such as desktop computer links and modems.

The Poqet PC, Hewlett-Packard 95LX and Atari Portfolio use AA batteries, while the Sharp Wizard and Casio B.O.S.S. use flat, round lithium

batteries. A survey of many palmtop users on CompuServe revealed some interesting information on average battery life.

With an average use of about two to three hours per day, including occasional links to a PC, the Casio B.O.S.S. and Sharp Wizard went three to six months without a battery change. The Poqet PC runs for about 60 hours on a set of batteries, yielding about a month of use. Extensive modem use can cut the time down to less than a week! The HP 95LX is good for three to four weeks, while the Atari Portfolio lasted about two weeks longer.

These times may vary greatly depending on the amount of peripheral use such as PC links, modems, and printers. Rechargeable batteries did not perform as well, and are not recommended. Most of the palmtops have a backup battery that last about a year. Memory cards also use a backup battery that needs to be changed once a year to prevent data loss. Battery powered modems seemed to last about four to six weeks. --D.H.

Resources

Atari Computer Corporation
1196 Borregas Avenue
Sunnyvale, CA 94088 (408) 745-2000

Casio
Consumer Product Division
570 Mount Pleasant Avenue
Dover, NJ 07801 (201) 361-5400

Hewlett-Packard
1000 NE Circle Boulevard
Corvallis, OR 97330 (800) 443-1254

Poqet Computer Corporation
5200 Patrick Henry Drive
Santa Clara, CA 95054 (408) 982-9500

Sharp Electronics Corporation
Sharp Plaza
Mahwah, NJ 07430-2135 (201) 529-8200

CompuServe
5000 Arlington Centre Boulevard
Columbus, OH 43220 (800) 848-8990

DataBook, Inc.
Tower Building
Terrace Hill
Ithaca, NY 14850 (716) 889-4204

Digital Equipment Corporation
143 Main Street
Maynard, MA 01754 (800) DIG-ITAL

Eastman Kodak Company
901 Elm Grove Road
Rochester, NY 14653-6201 (800) 344-0006

Globalink
9302 Lee Highway

4th Floor
Fairfax, VA 22031 (703) 273-5600

Memory Card Associates
1016 East El Camino Real, Ste. 273
Sunnyvale, CA 94087 (408) 236-2623

Motorola, Inc.
1500 NW 22nd Street Avenue
Boynton Beach, FL 33426 (407) 364-2000

Nictrix Corporation
Leonia 80 Technical Center
2 Christie Heights Street
Leonia, NJ 07605 (201) 947-2220

Practical Peripherals
31245 La Baya Drive
Westlake Village, CA 91362 (800) 442-4774

Selectronics, Inc.
Two Tobey Village Office Park
Pittsford, NY 14534 (716) 248-3875

U.S. Robotics
8100 N. McCormick
Skokie, IL 60076 (800) 342-5877

Xoterix
23106 Baltar Street
West Hills, CA 91304 (818) 888-7390

* PERUSING GENIE Compiled by Ed Krimen

--> In the "Lexicor Product Support" category (25)
--> from the "Prism Render" topic (13)

Message 7 Thu Feb 06, 1992
R.MONFORT1 [LEXICORE] at 09:04 EST

Lee,

Sounds like the first full step of Phase-4 Software development is done! Now Rosetta, Chronos, Prism-Render and Prism Paint are all done and also the 24bit Leonardo board is almost ready. What will be the next step?

Ringo.

Message 9 Fri Feb 07, 1992
L.SEILER [LEXICOR] at 04:33 EST

Ringo,

The next step will be to first add 24Bit to Chronos, this is now in the works. Following this we will have an advanced PrismPaint24 which will

be where you can do 24Bit painting in the classic sense. It will be a fully functional posting tool for chronos animations, and provide both ATARI compatible 24Bit FLM format animations and cross platform file formats for other Computer Grapgic systems. And finally it will have a fully functional 2D animation support that will provide all the tools and functions you would expect in such an applications. We will also have single frame VCR support and other special tools. All these projects are now underway to some degree. Some projects are now being coded while others are just being started.

You will be happy to know that ATARI has provided several advanced ATARI computers available to us for two new programmer-Authors working on some very high speed graphics sorry but I can't be more detailed about the nature or name of the computers, but they are "Secret" machines. BUT I will give you a HINT! you will see some very special and very amazing hardware and software at the Hamburg show this March 11 to 18th.

All this neat stuff will be downward compatible and we will provide upgrades to all Lexicor customers with ST's and TT's for use of these tools. And of course all the exciting work and files will be transportable upwards as well.

More later
Lee

BTW: I must thank Mr. Rehbock at ATARI for working so hard to get us the advanced Computers and software support to have our software ready at the right time.

Message 13 Sun Feb 09, 1992
R.MONFORT1 [LEXICOR] at 00:04 EST

Render for Sculpt is an ACC and I recommend over 2 megs of Ram. It render like Chronos does let me give you a list of features for this program:

Object appearance settings, select for Draw all Faces.
Shading Method: Flat, Gourand, Phong.
Smooth Faces: off/on.
Dithering: none, fixed, ramdom.

Render Setting:
Resolutions: current, ST-low, TT-low, TT-Med and ISAC 1024, ISAC 800.
Render Mode: Wire Frame - All Edges or Visible Edges. Solid - Faces or Faces & Edges.
Palette: none, Gray Scale, Real
Shading: none, lighted, object depth cue, Group Depth Cue, World Depth Cue.
Quality: Draft, Final

It also has TT Hypermono and you can also select Cull Back Faces, White Background, Show as Boxes, Show Grid, Show Camera, Show Lights.

It also imports ANM file settings for Camera and lights. So it also has camera and light setting functions.

Now for PRISM-RENDER!

It loads Chronos ANM files for rendering. So you need to have Chronos, in Chronos you do all of your settings for Lights, objects, camera, and

effects but Prism-Render does a full 24bit file from any ST/TT system if you want to view the file on a ST or TT with out a 24bit board you can convert the file to a GIF format but with Leonardo you get the full 24bit 16.8 million color image.

Some sample settings for Prism-Render:

Render Setup:

Frames: all or Selected from - to, Every - frames.

Settings: TT low 320 x 480, ST Low 32 x 200, Leonardo 512 x 384, Leonardo 512 x 512, Current Resolution, Custom resolution.

Custom: With/Height or Pixel Width/ Pixel Height.

Reflection: off/on

Anti-aliasing: off/on.

View Targa File

Graphic mode: Leonardo, ST-low, TT-low, VDI.

Palette: True Color, Gray Scale, Best Palette, Same palette.

Scale: 1/4, 1/2, 1, 2, 4.

Save GIF file after viewing image.

Also see my other post listing all of the type of materials that be assign to objects.

Well I hope this help.

Ringo.

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-=> In the "Double Click Software" category (30)
-=> from the "DC Utilities 2.0" topic (2)

Message 97 Tue Feb 11, 1992
DOUBLE-CLICK [DC Software] at 18:23 EST

All,

LH5 has been in testing for some time now... Along with the Quester custom folder method. We will see when a solid version is ready, hopefully soon!

I have lobbied for a 'maintenance update' to get the latest DCX+ out the door. This would be considered in between an update and an upgrade since the complete package is not being worked on...

- keith gerdes

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-=> In the "Atari Corporation Online" category (14)
-=> from the "Feedback to Atari" topic (31)

Message 225 Mon Feb 10, 1992
A.WESTON [Alan] at 03:55 EST

For someone at Atari,

How does the equipment exchange program work? I have a fried 520 that I need to get repaired, or exchanged for another machine.

Message 226
S.WINICK

Mon Feb 10, 1992
at 06:34 EST

Alan,

Atari's equipment exchange program is simple. If your system is in need of repair, you can return it to Atari along with a check for the correct amount (you'll have to call customer service and find the correct amount for your machine, and get shipping instructions), and they will provide you with an exchange unit (you will probably NOT get back the system you send them -- they will probably send you back a reconditioned unit). The process will generally take between 4 to 6 weeks.

A better alternative (and faster also) would be to bring or ship your system to an Atari authorized service center, where it can be repaired. Repair is nearly always less expensive than a whole unit exchange, unless there are multiple problems. And you WILL get back your own system. If necessary, service centers can also provide you with a whole unit exchange (provided they participate in the whole unit exchange program). If you need additional information, leave E-mail to myself or any of the other fine online dealers.

Sheldon Winick (Computer STudio - Asheville, NC)

Message 227 Mon Feb 10, 1992
BOB-BRODIE [Atari Corp.] at 19:26 EST

Alan,

I encourage you to check with one of the dealers that is only here as well. They do a wonderful job, and are much faster than transactions sent in to Sunnyvale. Do contact Sheldon or one of the other dealers online here to get a feel for what kind of \$\$\$ or \$\$ you're looking at.

Most of them prefer not to quote prices in public, and I endorse that practice as well.

regards,
Bob Brodie

-=> In the "Gribnif Software" category (17)
-=> from the "Crazy Dots Graphics Card" topic (12)

Message 33 Sun Feb 09, 1992
R.BROWN30 at 21:15 EST

I've just received the SM147 Atari Monochrome Monitor (not many circulating as of yet), which is, quite simply, an IBM Super VGA monochrome monitor.

This is how monochrome should have always been on the ST. Compared to the SM124, maximum white on screen measures (using a photographic meter) 2 f/stops, or 400% brighter than the old SM124, and the <great> adjustments allow for a 180% greater image area (both monitors "stock" and "untweaked").

Of course, the world gets a little bit of a vertical stretch (a circle becomes an oval) when adjusting the SM147 to full height in regular ST Hi-Res.

The big question: will the Crazy Dots card <fill> the SM147 with one of its many resolutions and take full advantage of the monitor's capabilities?

-=> In the "Atari TT" category (28)
-=> from the "TT RAM" topic (13)

Message 162 Mon Feb 10, 1992
M.ABDULKAREE [ASX] at 23:17 EST

About re-mapping TOS into FRAM.. I guess that Atari is using cheap and slow ROMS because they know we'll want to upgrade to the newer TOS when it comes out. So why spend more on something that is not "final"?

But still, 200ns is pretty slow.. and I don't think they will use SRAM because TOS 3 is BIG and GROWING! Imagine the cost of 512KB or even 1024KB SRAM.. yikes!

Message 163 Tue Feb 11, 1992
J.ALLEN27 [FAST TECH] at 00:44 EST

100ns 1Meg SRAMs are about \$15 each...needs. But having it in _ram_ of any kind is not very appealing for an OS. Stick with roms.

Atari did a bunch of testing that indicated the speed of the roms only needed to be "so" fast, beyond it didn't warrant the extra cost.

-=> In the "Hardware" category (4)
-=> from the "Gadgets 68030 SST Board" topic (44)

Message 65 Mon Feb 10, 1992
LEOTAYLOR [LEO] at 17:45 EST

THE SST LIVES!

My 1986 ST-520 expanded to 2.5 MEG in a Pecan Wood Tower has made the jump to lightspeed. First time on it booted right up in NEODESK (I had deleted the AUTOs and ACCs but forgot the TOS 1.4 startup program).

After seeing the size of the manual I know why it's been 16 months since I saw the board at WACCE 1990...

On the whole I'm very happy with the SST!

Leo Taylor

=====

* LYNX OWNERS UPDATE

=====

From the SysOps who discovered the secrets of Slime World, news has come of the discovery of the newest Easter Egg in Lynx gaming. The game of LIFE has been discovered in Zarlor Mercenary.

Before we proceed, let us give you some background information. The game of LIFE was developed by mathematician John H. Conway in 1969-70. Using the following four simple rules, cells, represented by squares on graph paper, or pieces on a chess-board, or pixels on a computer screen, give birth and die in an orderly fashion.

1. A single living cell that is in contact (horizontally, vertically, or diagonally) with zero or one living cells will die from loneliness.
2. A living cell that is in contact with two or three other living cells will survive.
3. A living cell is born in any empty position bounded by three living cells.
4. A living cell bounded by four or more other living cells will die from overcrowding.

Much has been written about LIFE, and programs that simulate LIFE have been written for virtually every computer system. Amazing patterns that repeat forever, 'machines' that animate and propel themselves across the screen, 'guns' that fire projectiles called 'gliders', and animated objects that repeat their patterns in a fixed position have all been developed, and people are always finding new fascinating life forms in LIFE.

The following are some of the more simple 'life forms' and the names they have been given:

**	*	***	**	**	*	***
**	*	***	**	**	*	*
*	*	**	**	*	***	***
R PENTOMINO	LATIN CROSS	LETTER H	BEACON	CLOCK	GLIDER	LAUNCHER

In addition, all of the stable 'life forms' have names, here are some of them:

*	**	**			*			*	**	
**	*	*	*	*	*	*	**	**	*	*
**	*	*	*	*	*	*	*	*	*	*
*	*	**	*	**	**	*	**	**	*	**
BEEHIVE	LOAF	POND	TUB	BLOCK	SNAKE	BARGE	BOAT	SHIP	LONG	LONG
									LONG	LONG
									BOAT	SHIP

One problem with LIFE has been speed. Doing the computations by hand, as John Conway first did on graph paper, is excruciating slow, even for the smallest patterns. LIFE computer programs are faster and are popular, but definitely not due to their speed, with most taking from several seconds to several minutes to compute the next 'frame'. It is a complex process, with the screen being scanned pixel by pixel, each pixel tested against the rules, and the results stored on another screen for the next 'frame'.

LIFE on your Atari Lynx is the most amazing and fun 'Easter Egg' you have ever seen. It is lightning fast (an estimated 30 frames per second), and contains a library of life forms for you to experiment with and bring to life. It also contains a powerful drawing tool that has a copy buffer which can be flipped and placed anywhere on your screen. It is truly amazing to see John Conway's game brought to life on your Lynx.

All you need is an Atari Lynx and a Zarlor Mercenary game card. Complete documentation is currently being written and will be posted on the STAR-LINX BBS at noon (11 am Pacific, 2 pm Eastern) February 3, 1991. Call us in Mesa, AZ at 602-464-4817 to gain access to our system and join our Lynx Club, with members from all over the U.S.A. and Canada. Post your high scores, read press releases from Atari, play on-line games, and stay on top of the latest Lynx news with STAR-LINX.

Be sure to have your California Games game card handy when you call to gain higher access.

The above press release is (c)1991 STAR-LINX BBS and may be freely distributed, providing this statement is included.

=====

* A COMPARATIVE CHART OF DISKETTE TYPES by Daniel K. Stoicheff

=====

IN SIZES 3-1/2, 5-1/4, AND 8 INCH

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FREEWARE

Note: You are encouraged to make copies & disseminate freely, to upload to BBS, provided file remains intact and unaltered.

This simple listing identifies thirty-four (34) distinct varieties of diskettes in the three available sizes. Not all manufacturers support every diskette type. Eight inch diskettes are all but extinct, save for some mainframe users or CP/M diehards.

The list contains a brief description of each diskette type followed by manufacturers' codes.

The codes are:

3 = 3M
B = BASF
I = IBM
K = KAO
M = MAXELL
S = SONY
V = VERBATIM
ALL = All manufacturers shown

3M is to be commended for their leadership role in the development of magnetic media. They have continued to support a full line of diskette types, some of which have long ago fallen from favor.

3-1/2 inch diskettes:

DOUBLE SIDE, DOUBLE DENSITY, 1MB	ALL
DOUBLE SIDE, HI DENSITY, 2MB	ALL
DOUBLE SIDE, EXTRA DENSITY, 4MB	3, M, S, V
CPT COMPATIBLE	3 (NO HUB RING)
LANIER COMPATIBLE	3

5-1/4 inch diskettes:

DOUBLE SIDE, HI DENSITY, 80 TPI	ALL
SINGLE SIDE, DOUBLE DENSITY, 40 TRACKS, SOFT-SECTORED	I
DOUBLE SIDE, DOUBLE DENSITY, 40 TRACKS, SOFT-SECTORED	ALL
DOUBLE SIDE, DOUBLE DENSITY, 40 TRACKS, 10 HARD SECTORS	3, V
DOUBLE SIDE, DOUBLE DENSITY, 40 TRACKS, 16 HARD SECTORS	3
DOUBLE SIDE, QUAD DENSITY, SOFT-SECTORED	3 (80 TRACKS) M (96 TRACKS) V (77/80 TRACKS)
DOUBLE SIDE, QUAD DENSITY 96 TRACKS, 10 HARD SECTORS	3
DOUBLE SIDE, QUAD DENSITY 16 HARD SECTORS	3 (96 TRACKS) V (77/80 TRACKS)
SINGLE SIDE, QUAD DENSITY 77/80 TRACKS	3, V

8 inch diskettes

SINGLE SIDE, SINGLE DENSITY 128 BYTES, XEROX	V (WITH WRITE PROTECT)
SINGLE SIDE, SINGLE DENSITY 128 BYTES, IBM	I, M, V
DOUBLE SIDE, DOUBLE DENSITY UNFORMATTED	3, V
SINGLE SIDE, SINGLE DENSITY 32-HOLE HARD SECTOR	V
SINGLE SIDE, UNINITIALIZED	3 (DOUBLE DENSITY)
	V (DOUBLE DENSITY)
SINGLE SIDE, SINGLE DENSITY VYDEC/MEMOREX	M, V
SINGLE SIDE, DOUBLE DENSITY DATAPPOINT COMPATIBLE,	SOFT-SECTORED
	3 (RX02 FORMAT)
DOUBLE SIDE, INITIALIZED	I (15 SECTORS, DD)
	M (26 SECTORS, DD)
DOUBLE SIDE, DOUBLE DENSITY	3 (8 OR 15 SECTORS)
	I (8 OR 15 SECTORS)
	M (26 SECTORS)
DOUBLE SIDE, DOUBLE DENSITY 26 SECTORS, 256 BYTES/SECTOR	
	3, I, M
DOUBLE SIDE, DOUBLE DENSITY 8 SOFT SECTORS	V
DOUBLE SIDE, DOUBLE DENSITY 32 HARD SECTORS	3
SINGLE SIDE, DOUBLE DENSITY 32 HARD SECTORS	3
SINGLE SIDE, SINGLE DENSITY 512 BYTES/SECTOR	V, M
	I (FORMATTED)
DOUBLE SIDE, DOUBLE DENSITY 512 BYTES/SECTOR	3, M
	I (FORMATTED)

===== * PERUSING THE INTERNET Compiled by Bruce Hansford =====

Date: 31 Jan 92 21:37:05 GMT
>From: walter!porthos!nvux!rrk@uunet.uu.net (24115-kutz)
Subject: Atari Advertises

No one else has mentioned this, so I will. I saw my first Atari

magazine advertisement for the ST in years: the most recent Discover magazine shows an ST/MIDI setup, even mentions Atari ST (and other companies whose equipment contribute to the music setup). The opposing page is an ad for the Portfolio. Made my day.

Randy Kutz rrk@nvux1.cc.bellcore.com

Date: 4 Feb 92 13:34:57 GMT
>From: aurs01!whitcomb@mcnc.org (Jonathan Whitcomb)
Subject: MIDI

(Jim Trageser) writes:

>I'm writing yet another Atari story for San Diego's ComputerEdge
>magazine, and am trying to get a feel for what the most popular
>software/hardware (keyboards, et al) set-ups are with Ataris. Also,
>any comments on why you use an Atari for your MIDI rather than a PC or
>Mac. (I'm not a MIDI user; more DTP and WP than anything else, so bear
>with me. . . .)

I chose the Atari ST because it had the best price/performance ratio in its class for **any** application (in 1986) and especially MIDI. I still believe this is true for MIDI. Of course, the built in MIDI ports made it attractive as a user, but more importantly, it attracted many developers to the platform. I currently use a Mega ST4 with an SM124 monitor (a must for MIDI). Considering that the software for the ST is still state of the art, I have no reason to switch to another platform. In fact, the new ST Book portable will probably keep me firmly entrenched in the ST market.

I use Dr.T's software almost exclusively. The primary reasons are:

- 1) They have been in the business for years and have continuously upgraded their software. Sequences I made years ago on my 1040 ST run fine on the newest software.
- 2) The programs are modular. Dr.T's has developed a "Multi Program Environment" (MPE), which allows many of their programs to run concurrently and share data. Economically, it allows me to build my system a piece at a time, when I can afford each new piece.
- 3) Support. The programmers are available on-line on GENie, and provide answers to questions and bug fixes in a very short time. The tech info line is manned five days a week, and I receive upgrade notices and special deals on closeout software in the mail regularly. Since it's a US based company (as opposed to C-Lab or Steinberg/Jones), response time is amazingly fast. Bob Melvin (designer of the Caged Artist patch editors and X-oR universal patch editor/librarian/system exclusive data manager) is especially good in this regard, and has been known to respond to change requests within a two or three days.
- 4) The software is great. I use the KCS Omega sequencer, X-oR, T-Basic (an interpreted BASIC programming language with hooks into all of KCS's sequence data) and the Phantom (SMPTE sync interface and software). The interfaces are intuitive and the graphics are very useful. Anyone who still thinks that Dr.T's products just fill the screen with numbers hasn't seen them lately! The programs are extremely stable, and I have no problem using them with all of my

regular ST system software installed. I recently bought Intelligent Music's RealTime sequencer and M composition and performance tool.

My MIDI hardware setup is hardly state of the art, but it gets me by. I use a Korg 707 (8 voice multitimbral FM synth) primarily as a dumb keyboard. It's velocity sensitive and has after touch, and was quite cheap. The sounds aren't great, but I consider them as a free bonus with the keyboard. My main sound modules are the Korg P3 (piano) and Symphony (orchestra). Each are 16 voice multitimbral, and provide me with a limited range of sampled instruments. None of these instruments are new or expensive (I think that all three combined cost less than \$1000), but it is important to note that many of the high priced MIDI instruments have built in sequencers and other features which are redundant with my software. I also don't need lots of memory in my synths, as I can store data on my ST using X-oR. In fact, all I look for in a new synth are good sounds, lots of outputs and good MIDI support of the internal functions, so I can usually save money buying the stripped down, small memory rack-mount versions.

I also use an Alesis QuadraVerb GT, a Casio MG-510 guitar MIDI controller and a DMC MX-8 programmable MIDI switcher. I've written X-OR profiles for the P3, Symphony and Quadraverb GT.

My next major music hardware purchase will be an 8-track reel-to-reel. I was thinking of buying a Tascam TSR-8, but now that Fostex has worked up a MIDI interface with the ST, I will probably end up with an R8. The press reports >from NAMM indicate that this interface will allow complete control of the tape transport via the ST, so you can basically thread the tape and not have to touch the machine for the rest of the session. The fact that Fostex is now working with ST software companies (I believe this interface is available from C-Lab, Steinberg/Jones and Dr.T's) is a great sign for the survival of the ST as a major MIDI platform.

Jonathan Whitcomb UUCP: <whitcomb%aurgate@mcnc.org>
Alcatel Network Systems Delphi: JWHIT
Raleigh, NC GENie: J.WHITCOMB3

Date: 5 Feb 92 19:45:29 GMT
>From: george.arc.nasa.gov!glennd@icarus.riacs.edu (Glenn Deardorff)
Subject: MIDI

> I'm writing yet another Atari story for San Diego's ComputerEdge
> magazine, and am trying to get a feel for what the most popular
> software/hardware (keyboards, et al) set-ups are with Ataris. Also,

Reasons I use an Atari:

When I was shopping for a computer a few years ago for music applications, the Atari 1) definitely had the most bang for the buck ("Power Without the Price", eh?), and 2) had the widest selection of MIDI software to choose from (the Mac was close in this regard). The inclusion of built-in MIDI ports was not as much of a factor to me (since you can buy a MIDI interface for the Mac for ~ \$50), but is one reason, no doubt, why it has great 3rd party MIDI support. After I bought it, I found that new MIDI software that I wanted (e.g. editor/librarians) usually came out for the ST before other platforms, which made me especially glad I decided on it. And I believe the quality of

MIDI software (more on that later) is second to none.

Software:

I use Cubase 2.0 (OK, 2.01). Its "MIDI Manager" allows you to create your own graphic fader (and dials and buttons, etc.) to control most any System Exclusive parameter or other MIDI parameter and record it as part of the sequence; e.g. set up a bank of fader for volume, panning, after touch (timbral changes), effects changes, etc., and I can then control them with external controllers (like my J.L Cooper FaderMaster). Its "Interactive Phrase Synthesizer" can be used to essentially make programmable variations on a musical phrase (random or one of number of other algorithms) that you can use to jam with or as a source for new musical ideas. Two of these phrase synths can be active at once. A "drum map" is there for easily configuring and programming drum parts (can be used for any sound, actually). And you can easily record SysEx >from your synths onto a track as well. Its got great piano roll, event, and standard notation editing. In short, its great graphical appeal and ease-of-use make me one very happy customer. I haven't experienced any of the problems others have mentioned (namely, slow and buggy). I'm not trying to say its better for everyone than Dr. T's Omega, just that played a bit with Omega and I'm very happy with Cubase (from Steinberg/Jones).

I also use Dr. T's X-O-R universal editor/librarian for configuring and editing my MIDI system as if it were one big synth module. Its not perfect (the envelope editing is missing displays of actual numeric values, a problem on the Atari version which I've been assured will be remedied), but I can't imagine life without it - its editing is very useful, and the librarian is superb.

I also use Dr. T's VZ-Rider ed/lib for the Casio VZ10M, since the editing template for the VZ in X-oR is incomplete. A great, complete editor.

I have a couple of editor/librarians from Steinberg/Jones: for the M1 and the Wavestation. I can't imagine a better graphical user interface. Especially for the newer Wavestation one - its got everything (including little "VU meters" to let you know which patch in a performance is currently sounding and how loudly). They're expensive, but top-notch (and available only on the Atari, as is Cubase 2.0 currently).

And very importantly, I use the Revolver partition switcher to be able to simultaneously switch between Cubase, X-oR and VZ-Rider. I'm very impressed that I can use it with some non-GEM programs (like Cubase and VZ-Rider), and that I can "roll in" pre-booted programs (I use it to load in a state of X-oR that already has all my favorite banks loaded). Unlike the M-ROS multitasking operating system that comes with the Steinberg products, it has no problems with desk accessories, and can be used with most other non-Steinberg non-GEM programs OK.

Hardware:

Korg Wavestation Ex, Prophet VS, Korg M1R, Casio VZ10M, Lexicon LXP-5, Alesis Quadraverb+, JL Cooper FaderMaster, Roland M160 mixer, Korg MIDI patch bay, and 1040ST

Date: 11 Feb 92 09:21:09 GMT

>From: news.hawaii.edu!uhunix.uhcc.Hawaii.Edu!jww@ames.arpa
Subject: Motorola CD-I chips

Atari announced their support of the CD-I standard and this press release from Motorola contains interesting info about the next generation of CD-I components which may be designed in some of the systems Atari plans to introduce in '92. The combination of the Motorola 68340 processor, 56001 DSP, 44466 Video Decoder (mixing output from the MPEG and Atari custom graphic processors) and orchestrated by Multi-TOS and Microware's CD-RTOS, would add up to a machine that delivers thunder and lightning for a price that promises to be a drop in the bucket.

----- Motorola Press Release -----

Motorola Semiconductor Products Sector has announced today (4/91) the availability of the first key part in the Motorola CD-I chip set, the MC44466 Video Signal Decoder. Motorola announced their co-operation with Philips Interactive Media Systems on the chip set in November 1989. Results of this on-going cooperation have been included in the CD-I demonstration system that Philips presented at Horizons '91, a major Motorola event organized for the worldwide press in Austin. Another key device presently under joint design is the MPEG-FMV, a full motion video decompression processor for CD-I applications.

The Video Signal Decoder, the MC44466, is a real time two channel video data decoder which can combine four image planes, by overlaying and mixing, into one final image. It can perform special effects like dissolves, mosaics, partial updates, etc. It is fully qualified in accordance with the CD-I "Green Book" standard and is now available to the worldwide market. The MC44466 will be followed by other key devices for CD-I systems:

- o The MPEG-FMV decoder performs the decompression and display of full screen, full motion video conforming to the MPEG standard. It is a highly integrated, cost effective solution implemented in Motorola's High Density sub-micron CMOS technology.
- o The MPEG audio decoder performs the audio decompression according to the standard defined by MPEG level 2. This device is based upon Motorola's DSP56001 24-bit digital signal processor.
- o The MC68340, a 32-bit microprocessor, acts as the central processing unit to control the system modules and provides high speed data transfer. Previously released, this device is now being qualified for use in CD-I systems.
- o The MC44200 is a triple 8-bit digital to analog data converter optimized for use in CD-I systems. It interfaces direct to the MC44466 and provides analog RGB outputs.

All these devices will be qualified to the "Green Book" standard and Motorola will be offering the complete chip set as part of their global semiconductor offering.

By providing a global source of qualified devices to all CD-I equipment manufacturers, Motorola aims to accelerate the acceptance of CD-I as a Multimedia standard and add momentum to its rate of growth as the next major consumer product innovation.

*CD-I "Green Book" standard - This standard is defined by Philips and Sony. It has two charters: To explicitly define the CD-I Media Specification and to assure that all CD-I and CD-Audio discs can play on all CD-I players in real time.

*MPEG - The Motion Picture Experts Group, is a joint ISO/CCITT standards committee, chartered with the task of defining a global standard for video compression.

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To sign up for DELPHI service, call (with modem) (800) 695-4002. Upon connection, hit <return> once or twice. At Password: type ZNET and hit <return>.

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To sign up for GENie service call (with modem) (800) 638-8369. Upon connection type HHH and hit <return>. Wait for the U#= prompt and type XTX99436,GENie and hit <return>.

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To sign up for CompuServe service call (with phone) (800) 848-8199. Ask for operator #198. You will be promptly sent a \$15.00 free membership kit.

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